Assignment 5 (Functional Composition)

Code of Function.scala:

```
def map2[T1, T2, R](t1y: Try[T1], t2y: Try[T2])(f: (T1, T2)
=> R): Try[R] = for(t1<-t1y;t2<-t2y) yield f(t1,t2)
```

```
def map3[T1, T2, T3, R](t1y: Try[T1], t2y: Try[T2], t3y:
Try[T3])(f: (T1, T2, T3) => R): Try[R] = for(t1<-t1y;t2<-
t2y;t3<-t3y) yield f(t1,t2,t3) // TO BE IMPLEMENTED
```

```
def map7[T1, T2, T3, T4, T5, T6, T7, R](t1y: Try[T1], t2y:
Try[T2], t3y: Try[T3], t4y: Try[T4], t5y: Try[T5], t6y:
Try[T6], t7y: Try[T7])
                                        (f: (T1, T2, T3, T4,
T5, T6, T7) => R): Try[R] = for(t1<-t1y;t2<-t2y;t3<-
t3y;t4<-t4y;t5<-t5y;t6<-t6y;t7<-t7y) yield
f(t1,t2,t3,t4,t5,t6,t7) // TO BE IMPLEMENTED
```

```
def lift[T, R](f: T => R): Try[T] => Try[R] = _ map f
```

```
def lift2[T1, T2, R](f: (T1, T2) => R): (Try[T1], Try[T2])
=> Try[R] = for(t1: T1 <- _;t2: T2 <- _) yield f(t1,t2)//
TO BE IMPLEMENTED
```

```
def lift3[T1, T2, T3, R](f: (T1, T2, T3) => R): (Try[T1],
Try[T2], Try[T3]) => Try[R] = for(t1: T1 <- _;t2: T2 <-
_;t3: T3 <- _) yield f(t1,t2,t3) // TO BE IMPLEMENTED
```

```
def lift7[T1, T2, T3, T4, T5, T6, T7, R](f: (T1, T2, T3, T4, T5, T6, T7) => R): (Try[T1], Try[T2], Try[T3], Try[T4], Try[T5], Try[T6], Try[T7]) => Try[R] = for(t1: T1 <- _;t2: T2 <- _;t3: T3 <- _;t4: T4 <- _;t5: T5 <- _;t6: T6 <- _;t7: T7 <- _) yield f(t1,t2,t3,t4,t5,t6,t7) // TO BE IMPLEMENTED

def invert2[T1, T2, R](f: T1 => T2 => R): T2 => T1 => R = T2 => T1 => f(T1)(T2) // TO BE IMPLEMENTED

def invert3[T1, T2, T3, R](f: T1 => T2 => T3 => R): T3 => T2 => T1 => R = T3 => T2 => T1 => f(T1)(T2)(T3) // TO BE IMPLEMENTED

def invert4[T1, T2, T3, T4, R](f: T1 => T2 => T3 => T4 => R): T4 => T3 => T2 => T1 => R = T4 => T3 => T2 => T1 => f(T1)(T2)(T3)(T4) // TO BE IMPLEMENTED

def uncurried2[T1, T2, T3, R](f: T1 => T2 => T3 => R): (T1, T2) => T3 => R = (t1: T1, t2: T2) => f(t1)(t2) // TO BE IMPLEMENTED

def uncurried3[T1, T2, T3, T4, R](f: T1 => T2 => T3 => T4 => R): (T1, T2, T3) => T4 => R = (t1: T1, t2: T2, t3: T3) => f(t1)(t2)(t3) // TO BE IMPLEMENTED
```

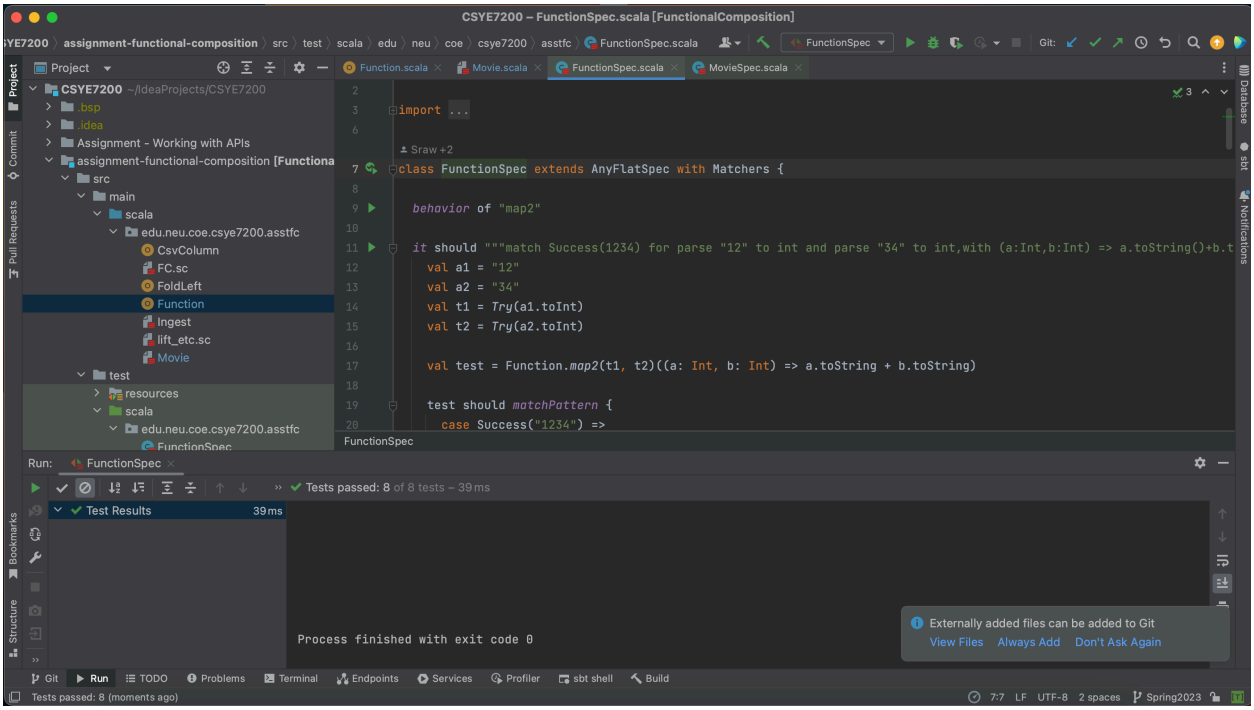
```
def uncurried7[T1, T2, T3, T4, T5, T6, T7, T8, R](f: T1 =>
T2 => T3 => T4 => T5 => T6 => T7 => T8 => R): (T1, T2, T3,
T4, T5, T6, T7) => T8 => R =
  (t1: T1, t2: T2, t3: T3, t4: T4, t5: T5, t6: T6, t7: T7)
=> f(t1)(t2)(t3)(t4)(t5)(t6)(t7) // TO BE IMPLEMENTED
```

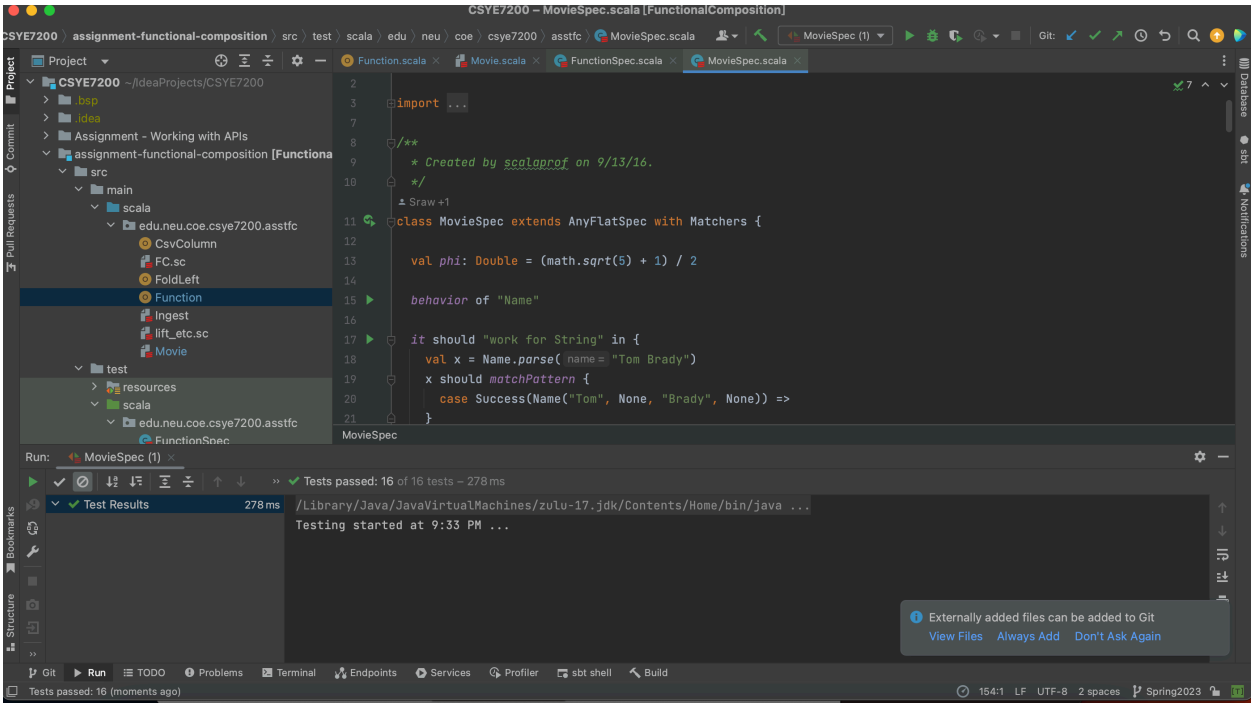
Code of Movie.scala:

```
implicit val format = jsonFormat4(Format.apply)
implicit val rating = jsonFormat2(Rating.apply)
implicit val production = jsonFormat4(Production.apply)
implicit val name = jsonFormat4(Name.apply)
implicit val reviews = jsonFormat7(Reviews.apply)
implicit val principal = jsonFormat2(Principal.apply)
implicit val movie = jsonFormat11(Movie.apply)
```

```
 import MoviesProtocol._
  val Newms = ms.toJson.convertTo[Seq[Movie]]
  Newms == ms
```

Screenshot:


CSYE7200 – FunctionSpec.scala [FunctionalComposition]
Function.scala
Movie.scala
FunctionSpec.scala
MovieSpec.scala
import ...
class FunctionSpec extends AnyFlatSpec with Matchers {
behavior of "map2"
it should """match Success(1234) for parse "12" to int and parse "34" to int,with (a:Int,b:Int) => a.toString()+b.t
val a1 = "12"
val a2 = "34"
val t1 = Try(a1.toInt)
val t2 = Try(a2.toInt)
val test = Function.map2(t1, t2)((a: Int, b: Int) => a.toString + b.toString)
test should matchPattern {
case Success("1234") =>
FunctionSpec
Run: FunctionSpec
Tests passed: 8 of 8 tests – 39 ms
Test Results 39 ms
Process finished with exit code 0
Externally added files can be added to Git
View Files Always Add Don't Ask Again
Tests passed: 8 (moments ago)


CSYE7200 – MovieSpec.scala [FunctionalComposition]
Function.scala
Movie.scala
FunctionSpec.scala
MovieSpec.scala
import ...
/**
* Created by scalaprof on 9/13/16.
*/
class MovieSpec extends AnyFlatSpec with Matchers {
val phi: Double = (math.sqrt(5) + 1) / 2
behavior of "Name"
it should "work for String" in {
val x = Name.parse(name = "Tom Brady")
x should matchPattern {
case Success(Name("Tom", None, "Brady", None)) =>
}
MovieSpec
Run: MovieSpec (1)
Tests passed: 16 of 16 tests – 278 ms
Test Results 278 ms
/Library/Java/JavaVirtualMachines/zulu-17.jdk/Contents/Home/bin/java ...
Testing started at 9:33 PM ...
Externally added files can be added to Git
View Files Always Add Don't Ask Again
Tests passed: 16 (moments ago)